

***FlyBy Math™* Alignment to
Nevada Mathematics Process Standards
February 25, 2003 Edition**

Process Standard 6.0: Problem Solving

Students will develop their ability to solve problems by engaging in developmentally appropriate problem solving opportunities in which there is a need to use various approaches to investigate and understand mathematical concepts in order to: formulate their own problems; find solutions to problems from everyday situations; develop and apply strategies to solve a wide variety of problems; and integrate mathematical reasoning, communication and connections.

Process Standard	<i>FlyBy Math™</i> Activities
6.1 Select, modify, develop, and apply strategies to solve a variety of mathematical and practical problems and to investigate and understand mathematical concepts.	<p>--Apply mathematics to solving distance, rate, and time problems for aircraft conflict scenarios.</p> <p>--Choose among tables, bar graphs, line graphs, a Cartesian coordinate system, and equations to model aircraft conflicts and predict outcomes.</p>
6.5 Verify, interpret, and evaluate results with respect to the original problem situation, determining an efficient strategy for the given situation.	--Choose among tables, bar graphs, line graphs, a Cartesian coordinate system, and equations to model aircraft conflicts and predict outcomes.
6.6 Try more than one strategy when the first strategy proves to be unproductive.	<p>--Apply mathematics to solving distance, rate, and time problems for aircraft conflict scenarios.</p> <p>--Choose among tables, bar graphs, line graphs, a Cartesian coordinate system, and equations to model aircraft conflicts and predict outcomes.</p>
6.7 Apply multi-step, integrated, mathematical problem-solving strategies, persisting until a solution is found or until it is clear that no solution exists.	--Use calculations and experimental evidence to predict, describe, and explain several aircraft conflict problems.
6.9 Generalize solutions and strategies from earlier problems to new problem situations.	--Use calculations and experimental evidence to predict, describe, and explain several aircraft conflict problems.

Process Standard 7.0: Mathematical Communication

Students will develop their ability to communicate mathematically by solving problems in which there is a need to obtain information from the real world through reading, listening, and observing in order to: translate this information into a mathematical language and symbols; process this information mathematically; and present results in written, oral and visual formats.

Process Standard	FlyBy Math™ Activities
7.1 Discuss and exchange ideas about mathematics as a part of learning.	--Use calculations and experimental evidence to predict, describe, and explain several aircraft conflict problems.
7.2 Use inquiry techniques (e.g. discussion, questioning, research, data gathering) to solve mathematical problems.	--Conduct simulation and measurement for several aircraft conflict problems. --Use calculations and experimental evidence to predict, describe, and explain several aircraft conflict problems.
7.8 Use physical material, diagrams, and tables to represent and then communicate mathematical ideas through oral, verbal, and written formats.	--Use tables, bar graphs, line graphs, a Cartesian coordinate system, and equations to model aircraft conflicts and predict outcomes. --Explain and justify solutions regarding the motion of two airplanes using the results of plotting points on a schematic of a jet route, on a vertical line graph, and on a Cartesian coordinate system.
7.11 Make conjectures and present arguments in discussions of mathematical ideas.	--Apply mathematics to predict and analyze aircraft conflicts and validate through experimentation. --Predict outcomes and explain results of mathematical models and experiments.
7.12 Explain and justify thinking about mathematical ideas and solutions.	--Explain and justify solutions regarding the motion of two airplanes using the results of plotting points on a schematic of a jet route, on a vertical line graph, and on a Cartesian coordinate system.
7.15 Use everyday language to explain thinking about strategies and solutions to mathematical problems.	--Predict outcomes and explain results of mathematical models and experiments.
7.16 Express mathematical ideas and use them to define, compare, and solve problems orally and in writing.	--Predict outcomes and explain results of mathematical models and experiments.
7.17 Use mathematical notation to communicate and explain mathematical situations.	--Explain and justify solutions regarding the motion of two airplanes using the results of plotting points on a schematic of a jet route, on a vertical line graph, and on a Cartesian coordinate system.

Process Standard 8.0: Mathematical Reasoning

Student will develop their ability to reason mathematically by solving problems in which there is a need to investigate significant mathematical ideas and construct their own learning in all content areas in order to justify their thinking; reinforce and extend their logical reasoning abilities; reflect on and clarify their own thinking; and ask questions to extend their thinking.

Process Standard	FlyBy Math™ Activities
8.2 Justify answers and the steps taken to solve problems, with and without manipulatives and physical models.	--Explain and justify solutions regarding the motion of two airplanes using the results of plotting points on a schematic of a jet route, on a vertical line graph, and on a Cartesian coordinate system.
8.4 Use patterns and relationships to analyze mathematical situations; draw logical conclusions about mathematical problems.	--Represent distance, speed, and time relationships for constant speed cases using tables, bar graphs, line graphs, equations, and a Cartesian coordinate system. --Use tables, bar graphs, line graphs, equations, and a Cartesian coordinate system to draw conclusions.

Process Standard 9.0: Mathematical Connections

Students will develop the ability to make mathematical connections by solving problems in which there is a need to view mathematics as an integrated whole, identifying relationships between context strands, and integrating mathematics with other disciplines, allowing the flexibility to approach problems in a variety of ways within and beyond the field of mathematics.